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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/875,197	06/07/2001	Joon-Young Yang	8733.132.20	8761

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LONG ALDRIDGE & NORMAN, LLP
701 PENNSYLVANIA AVENUE N.W.
SUITE 600
WASHINGTON, DC 20004

EXAMINER

RAO, SHRINIVAS H

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 05/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/875,197

Applicant(s)

YANG, JOON-YOUNG

Examiner

Steven H. Rao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 21-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

The undersigned Examiner Rao contacted Mr. Song K. Jung the attorney of record in the first week of December 2001 requesting a clarification or amendment because the parent case U.S. Patent No. 6,281,055 also recited method claims only.

Mr. Song K. Jung indicated that he will contact his clients and will get back to the Examiner.

The Examiner again contacted Mr. Jung around the 17 of December 17, 2001 and was told by the Mr. Jung that he (Mr. Jung) had not heard from his clients and that the Examiner should examine the claims are they were pending .

Therefore the Examiner prepared an office Action on the basis of this election by Mr. Jung and a O/A prepared on January 09, 2002 was mailed on January 17, 2002.

The next thing the Examiner Knew was that a preliminary amendment allegedly received in the PTO on December 12, 2001 was entered on January 29, 2002 .

Therefore for no fault on part of the Examiner Rao , a second non-final action has to be issued.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

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A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 21-40 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-20 of the prior U.S. Patent no. 6,281,055.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 31 and 32 rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 31 and 32 both recite, "the hydrogen ions heat the temporarily excited region to a temperature between about 200-300 degrees Celsius.

The specification only describes optimal doping temperature as 200-300 degrees and not the hydrogen ions as heating any region.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 21-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi et al. (U.S. Patent No. 5,987,346, herein after Yamaguchi).

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With respect to claim 2'', Yamguchi teaches a method of fabricating a TFT including the steps of : depositing a gate insulating material and a gate metal layer on an active layer (Yamaguchi fig. 1B# 13, col. 8 line 2: and fig.1 C #14)forming a gate, a gate insulating layer and an exposed portion of the active layer by etching the gate metal layer and the gate insulating material (Fig. 1C),temporarily exciting a region of the active layer by implanting H ions into the exposed portion of the active layer while using the gate as a mask (Yamaguchi fig. 1 A). Yamaguchi discloses the use of the active layer as a mask and implanting prior to the formation of the gate, However it would have been an obvious modification to alter the sequence of steps to implant the H after gate formation. Further as Applicants' claim use the terminology "comprising" the claim includes steps in any sequence.

It is also well settled law that, " as a matter of fact selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results." In re Burhaus, 154 F.2d 690, 69 USPQ 330 (CCPA 1946). See also ex parte Rubin (BAPI).

Forming an impurity region by implanting self-activating impurity ions into the temporarily excited region while that region is excited. (Fig. 1C implanting P+ ions).

With respect to claim 22, wherein a silicon dioxide or silicon nitride layer is deposited to on a glass substrate to form the gate insulating layer (Yamaguchi col.8 line 2).

With respect to claims 23-25, wherein ; the active layer is formed by depositing polycrystalline silicon (Yamaguchi- Embodiment -2, col. 8 lines 57-60) of 400-800 angstroms thick (Yamaguchi col.7 line 47), using CVD (Yamaguchi col. 7 line 48).

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With respect to claim 26, wherein the active layer is formed by depositing amorphous silicon and by crystallizing the amorphous silicon by laser annealing . (Yamaguchi col.7 line 46-51).

With respect to claim 27, wherein the exposed portion of the active layer is formed by : depositing layer of silicon dioxide on the gate insulating layer so as to cover the active layer. (Yamaguchi fig. 2 B and 2C) and patterning the conductive material and the silicon dioxide layer to form an insulating layer and a gate over a selected portion of the active layer (Fig. 1c or 2C).

With respect to claim 28, wherein the gate insulating layer has a thickness of 500-1500 angstroms and the gate has a thickness of 1500-2500 angstroms. (Yamaguchi col. 8 lines 2 and 5).

With respect to claims 29-34 , to the extent understood, wherein the H ions are implanted with energies between 50 to 150 KeV at a dose of 5×10^{14} to 5×10^{16} ions/cm² (Yamaguchi col. 9 line 15 and 54) at a temperature of 200-300 degrees Celsius (Yamaguchi col. 9 line 15 and 54) to simultaneously form impurity (inherent when a dopant is implanted an impurity region is formed) and implantation time proportionally related to the active layer size (inherent because the bigger the area the longer it will take).

With respect to claims 35 and 37, wherein forming source and drain regions by implanting impurity ions in to the designated region (Yamaguchi figs. 2 C and D, col. 9 line 40), activating the impurity ions simultaneously with the step of forming the impurity region in an excited state using ion particle mobility and excitation. (Yamaguchi col.9 line 39 heating which inherently produce mobility and excitation of ions.).

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With respect to claims 36 and 38, wherein the impurities are n-type or p-type (Yamaguchi col. 8 line 18-20, it is inherent that excited impurities will be self-activated).

With respect to claims 39 and 40 they repeat the steps of claims 21,27 and 35 and is rejected for reasons stated under claims 21,23, 27 and 35 heavily implanted impurity ions to the excited region while the excited region remains in an excited state. (fig. 1C).

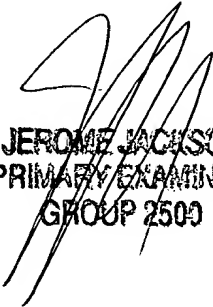
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Rao whose telephone number is (703) 3065945. The examiner can normally be reached on 8.00 to 5.00.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 3067722.

Steven H. Rao

Patent Examiner

May 15, 2002


JEROME JACKSON
PRIMARY EXAMINER
GROUP 2500